

## Patent Abstracts of Japan

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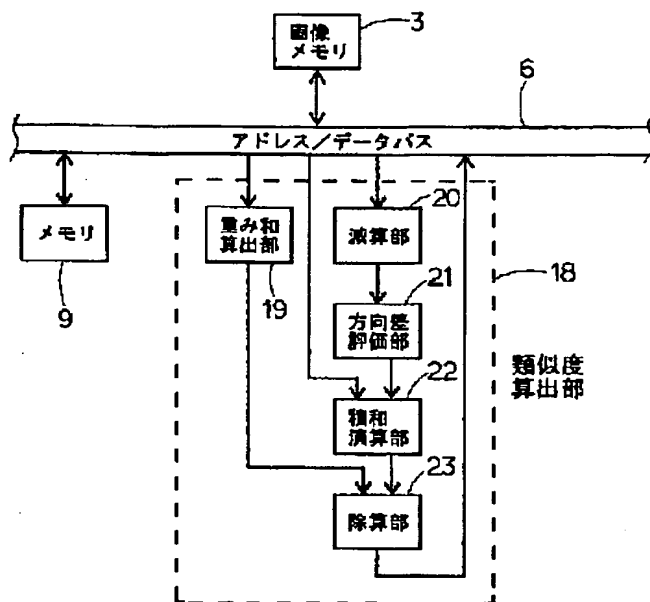
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APPLICANT : OMRON CORP;

INVENTOR : HISAMORI YOSHIHIKO;

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TITLE : DEVICE AND METHOD FOR  
CALCULATING SIMILARITY DEGREE  
AND POSITION DETECTOR USING  
THE SAME



**ABSTRACT :** PROBLEM TO BE SOLVED: To accurately calculate the degree of similarity between an input image and a model image by adding a value, while weighting it, with which the difference of density gradient direction between each picture element of the input image and the correspondent picture element of the model is evaluated, corresponding to the weight provided from the model.

**SOLUTION:** A density gradient direction  $I\theta(x, y)$  at each picture element of the input image fetched into an image memory 3 is found and stored in a memory 9 by the density gradient direction calculation part of an image processor. Then, a subtraction part 20 and direction difference evaluation part 21 of a similarity degree calculation part 18 find a value  $f[I\theta(x, y) - M\theta(x, y)]$  with which the difference of density gradient direction is evaluated between the density gradient direction  $I\theta(x, y)$  of this input image and a density gradient direction  $M\theta(x, y)$  at each correspondent picture element of the model previously stored in the memory 9. Then, a product-of-sums arithmetic part 22 adds while weighting this evaluated value corresponding to weight  $Mw(x, y)$  provided from the model and a division part 23 divides this added value with the sum of weight calculated by a sum-of-weight calculation part 19 so that the degree of similarity can be found.

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